these deposited layers combining during said heat treatment to form a layer that provides an electrically conducting bonding between the two faces,

applying said faces one against the other, with interposing of said layers of deposited material; and

carrying out a heat treatment;

wherein the layer of material deposited onto said face of the first semiconductor element and the layer of material deposited onto said face of the second semiconductor element are chosen to react in a solid phase during the heat treatment and to form a temperature stable mixture with respect to the first and the second semiconductor elements, the heat treatment not inducing any reaction product between the deposited materials and at least one of the semiconductor elements.

12. (New) Method according to Claim 11, wherein during a preliminary step, a thin film is bounded in a substrate by a layer of microcavities obtained by ionic implantation, the second semiconductor element, the heat treatment forming a mixture that does not induce any reaction product with the first and the second semiconductor elements.

13. (New) Method according to Claim 11, wherein one of the layers of material is deposited with an excess thickness such that a part of this layer, in contact with the other layer of material, combines with the other deposited layer of material to form said stable mixture, the other part of the layer deposited with an excess thickness, in contact with the semiconductor element on which it is deposited, reacting during the heat treatment with this semiconductor element to form a film with ohmic contact.

14. (New) Method according to Claim 11, wherein a layer of oxide is provided between said deposited layers of material, the oxide being chosen to react with at least one material of said deposited layers, thicknesses of the oxide layer and the layer of material with

which the oxide reacts being such that the oxide formed is in a form of isolated precipitates that do not substantially harm the electrically conducting bonding.

15. (New) Method according to Claim 14, wherein said layer of oxide is deposited on one of the deposited layers of material or on both of them.

16. (New) Method according to Claim 11, wherein the first and second semiconductor elements are pressed one against the other during the heat treatment.

17. (New) Method according to Claim 11, wherein the first semiconductor element is SiC and the second semiconductor element is SiC, the interposed layers comprising a layer of tungsten and a layer of silicon on said face of the first semiconductor element and a layer of tungsten and a layer of silicon on said face of the second semiconductor element, the mixture formed after the heat treatment comprising WSi_2.

18. (New) Method according to Claim 11, wherein one of the semiconductor elements is a thin film, and the method comprises a preliminary step of defining this thin film as a superficial layer of a substrate, configured to be separated from a rest of the substrate.

19. (New) Method according to Claim 18, wherein during the preliminary step the substrate is formed by stacking a support, a sacrificial layer, and the thin film, separation of the thin film from the rest of the substrate being obtained after creation of the bonding, by dissolution of the sacrificial layer.

20. (New) Method according to Claim 18, wherein during the preliminary step the thin film is bounded in a substrate by a layer of microcavities obtained by ionic implantation, the separation of the thin film from the rest of the substrate being consecutive to the bonding heat treatment or to a specific heat treatment or to the application of mechanical forces or to the combination of a heat treatment and the application of mechanical forces.